

J. O. HUNT.
ATTACHMENT FOR PULP PRESSES.
APPLICATION FILED SEPT. 5, 1908.

927,856.

Patented July 13, 1909.

2 SHEETS—SHEET 1.

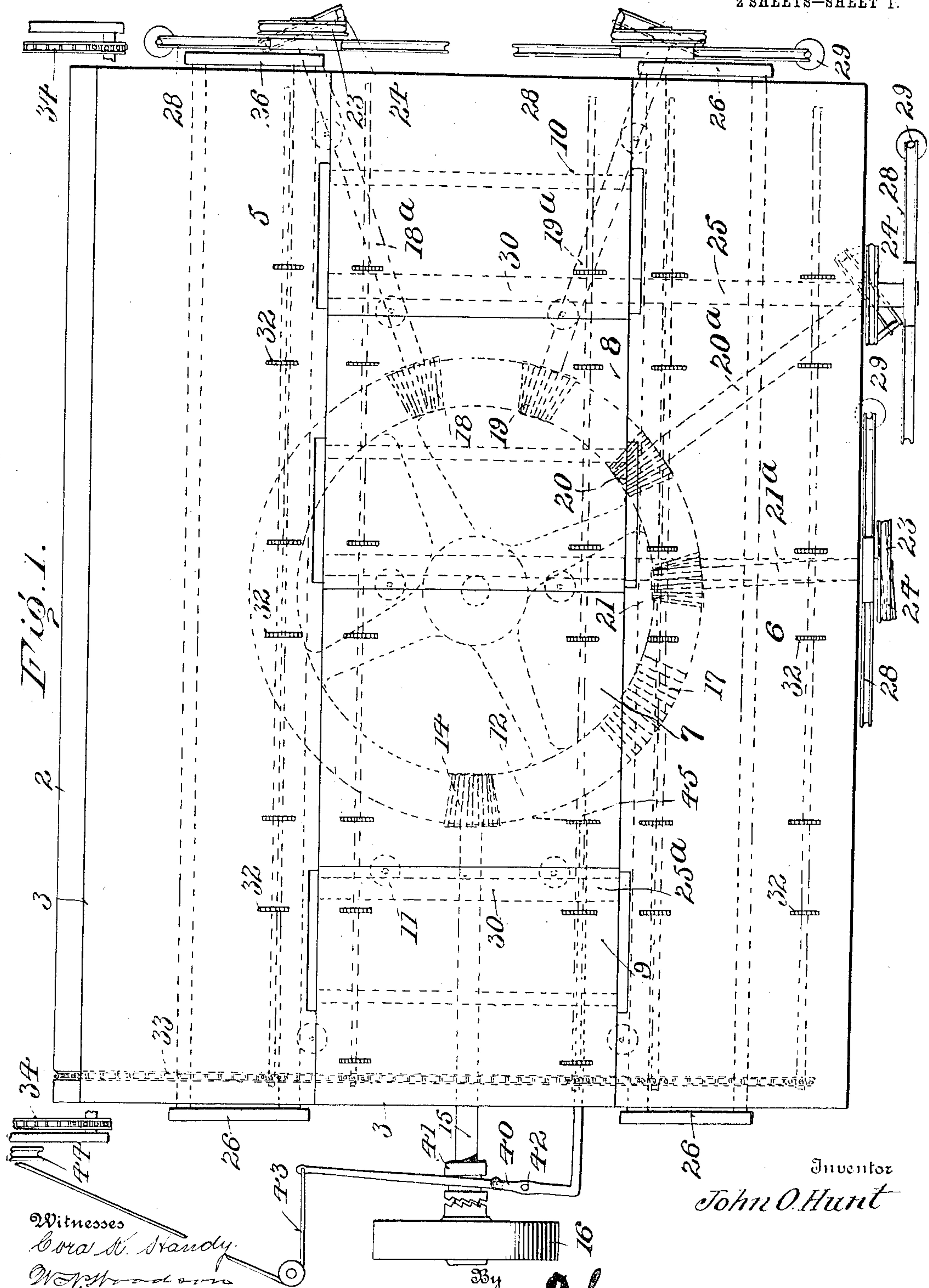


Fig. 1.

Witnesses
Cora M. Handy
W. A. Woodson

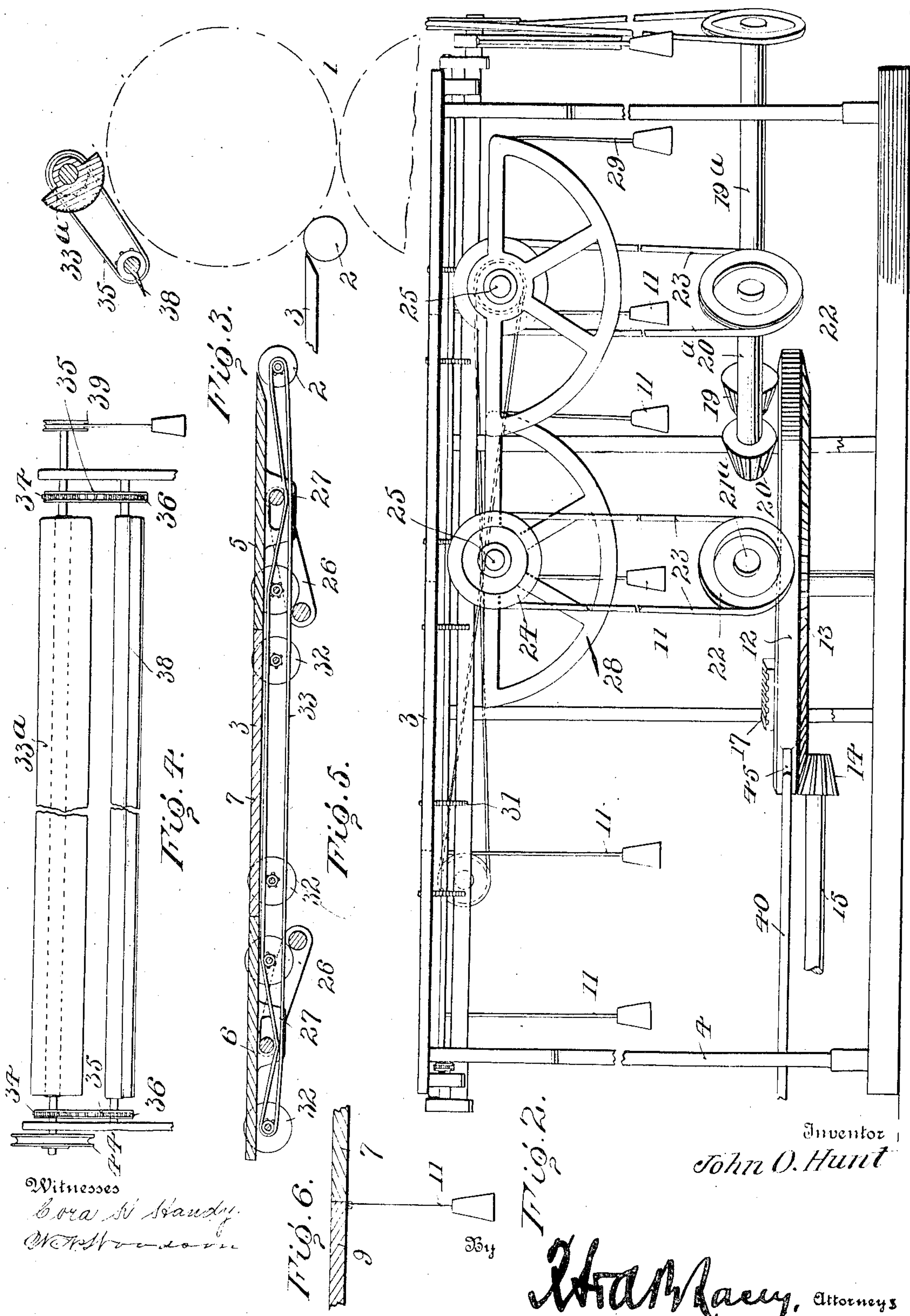
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UNITED STATES PATENT OFFICE.

JOHN O. HUNT, OF GLENS FALLS, NEW YORK.

ATTACHMENT FOR PULP-PRESSES.

No. 927,856.

Specification of Letters Patent.

Patented July 13, 1909.

Application filed September 5, 1908. Serial No. 451,834.

To all whom it may concern:

Be it known that I, JOHN O. HUNT, citizen of the United States, residing at Glens Falls, in the county of Warren and State of New York, have invented certain new and useful Improvements in Attachments for Pulp-Presses, of which the following is a specification.

This invention comprehends certain new and useful improvements in means for automatically stripping stock from the press cylinder and for automatically forming the pulp sheet into a bundle, thereby dispensing with the attendants that are usually employed to tend the presses for this purpose and consequently effecting important economies in the trade.

With these and other objects in view, the invention consists in certain constructions, arrangements and combinations of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings in which:

Figure 1 is a top plan view of a stock folding machine constructed in accordance with my invention; Fig. 2 is a side elevation thereof; Fig. 3 is a detail sectional view partly in dotted lines illustrating means for automatically guiding the paper pulp after it has accumulated to the predetermined extent upon the discharge cylinder of the press; Fig. 4 is a face view of the cutting mechanism employed; Fig. 5 is a transverse sectional view through the folding table; and, Fig. 6 is a detail sectional view illustrating one of the weights that are attached to the several leaves of the table so as to permit said leaves to be swung upwardly and inwardly for the folding operation.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

Referring to the drawings, the numeral 1 designates the preferably wooden roller of a pulp press, upon which the paper pulp accumulates before it is finally cut and discharged from the press.

2 designates a roll which may be operated in any desired way as by frictional engagement with the press roller 1, and 3 designates my improved folding table which is arranged with one edge in proximity to the roll 2 so as

to receive the sheet of pulp as it is stripped from the roll.

I have herein shown only the discharge roll of the press proper as the press of itself forms no part of my invention, my invention being, in a sense, an attachment to the press and capable of operating with presses of any conventional type or design.

The table 3 is supported upon a framework 4 of any desired construction or design and embodies a leaf 5 extending longitudinally thereof next to the press, an opposite leaf 6, a preferably stationary middle section 7, a hinged middle section 8, and hinged end leaves 9 and 10 located between the side leaves 5 and 6 at the ends of the latter. The leaves 5, 6, 9 and 10, as well as the middle section 8 are all freely mounted upon the supporting framework 4 in such a manner as to permit said leaves and sections to be swung upwardly and inwardly. This hinged mounting of the various leaves and section 8 may be accomplished in any desired way within the scope of my invention and, in the present instance, as illustrated in Fig. 6, I have shown as one of said ways a weighted cord 11 designed to swing the leaf backwardly or to an open position after the actuating mechanism has stopped and arranged to permit the leaf as it is swung inwardly upon the sheet to rise and accommodate itself to the increasing thickness of the sheet due to the plurality of plies into which it is folded.

Underneath the table 2 is mounted a horizontally disposed gear wheel 12 formed on its lower face with gear teeth 13 meshing with a bevel pinion 14 on the end of a drive shaft 15, said shaft receiving its motion from any suitable source of power communicated thereto as by the pulley 16 mounted on said shaft and arranged to be held fast thereon by means of a clutch mechanism hereinafter described. In addition to these teeth 13, the gear wheel 12 is provided on its upper face with a number of gear teeth 17. These are designed, in the rotation of the gear wheel 12, to successively engage the bevel pinions 18, 19, 20 and 21, mounted respectively upon spindles 18^a, 19^a, 20^a and 21^a. The spindles just mentioned are journaled in suitable bearings underneath the table in outwardly diverging relation at one corner thereof as best illustrated in Fig. 1 and the several spindles are respectively provided at their outer ends with preferably grooved pulleys 22

around which chains 23 extend as illustrated in Fig. 2. The chains 23 also extend around grooved pulleys 24 mounted on the shafts 25 and the said shafts are provided at their ends with crank arms 26 connecting the respective leaves to the middle section 8 of the table in such a manner, as by slotted brackets 27, that the rotation of the shafts 25 in turn will swing the leaves in closing upwardly and inwardly. In order to return the shafts to their normal position after the actuating mechanism has ceased to act thereon, the several shafts are provided at one end with quadrants 28 that are secured fast thereto and weighted cords 29 are secured to said quadrants, as best seen in Fig. 5.

From the foregoing description in connection with the accompanying drawings, it will be understood that as the sheet of pulp is passed onto the table 3 and the gear wheel 12 commences to turn, the gear teeth 17 will first engage the pinion 18 and turn the spindle 18^a in a direction to swing the leaf 5 upwardly and inwardly upon the stationary middle section 7 and its adjoining section to form the first fold in the sheet. As soon as the teeth 17 are disengaged from the pinion 18 the leaf 5 will be swung open again and in the continued rotation of the wheel 12, the teeth 17 will next engage the pinion 19 and turn the spindle 19^a in a direction to swing the opposite side leaf 6 inwardly to form the next fold. After this leaf 6 has been swung open or backwardly again, the engagement of the teeth 17 with the pinion 20 will turn the spindle 20^a, and it is to be accordingly noted that the shaft 25 which is secured to the spindle 20^a has a pulley and belt connection 30 with the shaft 25^a for swinging the leaf 9 hence it is evident, that as the shaft 25 turns the leaves 9 and 10 will both be folded inwardly with their free edges meeting so as to make two more folds in the sheet. After these leaves 9 and 10 have been swung back to an inoperative position, the engagement of the teeth 17 with the pinion 21 will finally cause the middle section 8 to swing upwardly and fold downwardly upon the stationary section 7 to complete the folded sheet or bundle.

In order to hold the pulp sheet from the roller 1 onto the table 3, and in order also after the bundle is formed to automatically discharge said bundle from the table, and make way for the next sheet to be folded, I have provided a plurality of sets of spur wheels 31 mounted in shafts journaled underneath the table with the spurs projecting upwardly through the slots 32 formed in the various leaves and sections of the table. All of these shafts for the spur wheels are geared to move together as by a chain or similar connecting means 33 and they may receive their motion from any desired source of power, traveling, however, at the same surface

speed as the roll 2 and preferably receiving their motion directly from said roll.

As above stated, my invention comprehends means for automatically cutting the paper pulp from the periphery of the press roller 1, and the means employed in the present embodiment of the invention for this purpose comprises a flat face roller 33^a mounted in suitable bearings in the framework of the press, the shaft of said roller carrying bracket wheels 34 that are connected by chains 35 to corresponding wheels 36 on the shaft of a knife blade 38 so that as the roller 33^a is turned in one direction, the knife blade will be turned against the roller 1 so as to cut the sheet from the roller as the same revolves. This operation of cutting the sheet is automatic. As soon as the pulp accumulates to a predetermined extent, upon the periphery of the roller 1 it will engage the rounded portion of the roller 33^a and cause said roller to turn, and the flat face of said roller is provided so that it may be turned by frictional engagement with the sheet only far enough to cause the proper movement of the knife toward the roller 1. As soon as the knife 38 cuts the sheet the lowermost cut edge will fall upon the leaf 5 and be engaged by the first set of spur wheels and thence be fed over the table and stripped from the roller 1, while as soon as the exposed portion of the periphery of the roller 1 arrives at the roller 33^a, said roller will be permitted to rock backwardly or in the reverse direction to carry the knife outwardly to an inoperative position. This reverse movement of the roller 33^a may be accomplished by a spring or weight, or any equivalent means. In the present instance, I have shown a weighted pulley 39 for this purpose.

In order to automatically start and stop my folding apparatus, the shipper lever 40 of the clutch 41 is fulcrumed at 42 and one arm of said lever is connected by a chain or cable 43 with a pulley 44, the said cable being adapted to wind upon said pulley; the pulley 44 is mounted upon the shaft and roller 33^a and as soon as said roller turns in a direction to move the knife to an inoperative position, as above described, the cable 43 winding upon the pulley 44 will pull upon the shipper lever 41 and throw the clutch in whereupon the shaft 15 will be started and the movements above described will be effected. At the conclusion of these movements and at the completion of the folding operation, a cam 45 which is secured to the periphery of the wheel 12 will engage the other arm of said lever 40 as best illustrated in Figs. 1 and 2 and push upon said arm whereby to throw the shipper lever in the opposite direction and uncouple the driving wheel 16 from the shaft, the apparatus being thereby stopped. As soon as it is started again, it is obvious that the bundle that has been formed upon the stationary section 7 of the table will be

moved outwardly and off the leaf 6 preferably onto a traveling belt or apron (not shown) so as to make way for the next sheet to be folded.

5 Having thus described the invention, what I claim is:

1. The combination with the pulp roll of a paper pulp press of a table arranged in proximity to said roll, means for severing the 10 pulp from the roll and for depositing it upon the table, said table embodying a plurality of leaves, and means for folding said leaves inwardly upon the sheet.

2. The combination with the pulp roll of a 15 paper pulp press, of a table arranged in proximity to said roll, means for automatically severing the pulp from the roll at a predetermined thickness of the pulp, means for depositing the pulp as a sheet upon the table, 20 and means for automatically folding the sheet thereon.

3. The combination with the pulp roll of a paper pulp press, of means for automatically severing the pulp and stripping it from the 25 roll in a sheet at a predetermined thickness of the pulp, a table arranged in proximity to said roll and arranged to receive the sheet therefrom, means for folding the sheet upon said table, and means for automatically 30 starting the folding mechanism upon the deposit of the sheet thereon.

4. The combination with the pulp roll of a paper pulp press, of means for automatically severing the pulp and stripping it from the 35 roll in a sheet at a predetermined thickness of the pulp, a table arranged in proximity to said roll and arranged to receive the sheet therefrom, means for folding the sheet upon said table, and means for automatically 40 starting the folding mechanism upon the deposit of the sheet on the table and for automatically stopping said mechanism at the completion of the operation.

5. The combination with the pulp roll of a 45 paper pulp press, of a roller arranged in proximity to the periphery of said roll and arranged to be rocked by engagement with the pulp on the periphery of said roll at a prede-

termined thickness of said pulp, a knife blade 50 operatively connected to said roller and arranged to be moved thereby into engagement with the pulp, a folding table arranged in proximity to said roll and designed to receive the pulp therefrom, means for feeding 55 the pulp as a sheet over said table, the table embodying a plurality of leaves, and means for automatically folding said leaves inwardly upon the sheet.

6. The combination with the pulp roll of a paper pulp press, of a table arranged in prox- 60 imity to said roll, and arranged to receive the sheets therefrom, said table embodying a framework, longitudinally extending side leaves mounted on said framework and arranged to fold inwardly thereon, end leaves 65 mounted between the side leaves and arranged to fold inwardly, a stationary middle section, a hinged middle section, said sections being between and in longitudinal alinement with the end leaves, and means for 70 folding first one and then the other of the side leaves inwardly, next folding the two end leaves inwardly upon the middle sections, and finally folding the hinged middle section inwardly upon the stationary middle section. 75

7. The combination with the pulp roll of a paper pulp press, of a table arranged in prox- imity to said roll, and arranged to receive the 80 sheets therefrom, said table embodying a plurality of leaves arranged to fold inwardly, shafts with crank arms connected to said leaves to swing the same, spindles mounted underneath the table and operatively con- 85 nected to said shafts, said spindles carrying pinions, a gear wheel mounted underneath the table and provided with a set of gear teeth adapted to engage the pinions in suc- cession for the purpose specified, and means for turning said gear wheel.

In testimony whereof I affix my signature 90 in presence of two witnesses.

JOHN O. HUNT. [L. s.]

Witnesses:

W. N. WOODSON,
FREDERICK S. STITT.