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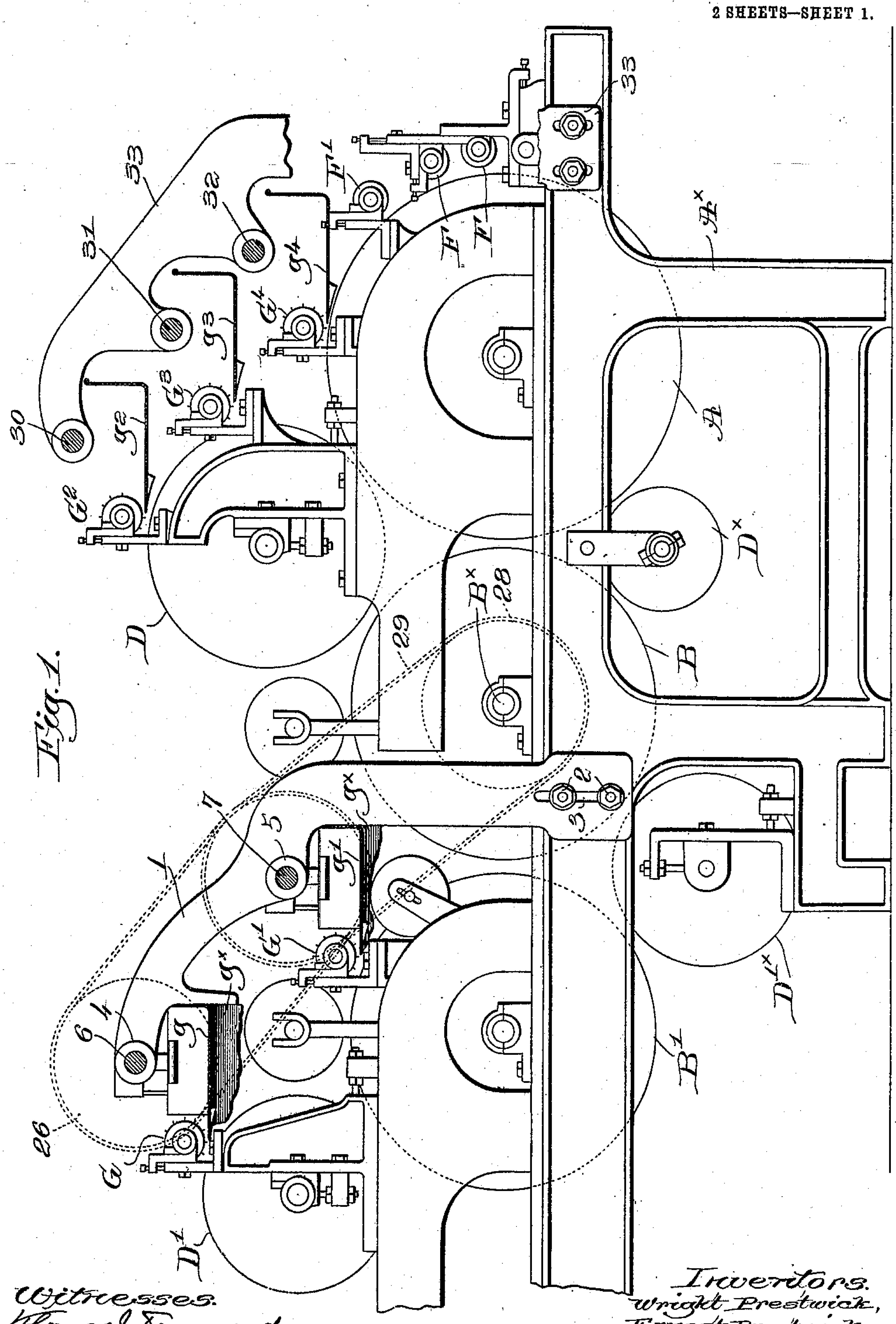
APPARATUS FOR REMOVING BURS ON WORSTED CARDS.

APPLICATION FILED OCT. 5, 1908.

924,379. Patented June 8, 1909.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses.
Thomas J. Drummond
Joseph M. Ward.

Inventors.
Wright Prestwick,
Ernest Prestwick,
by Crosby Gregory. Attys.

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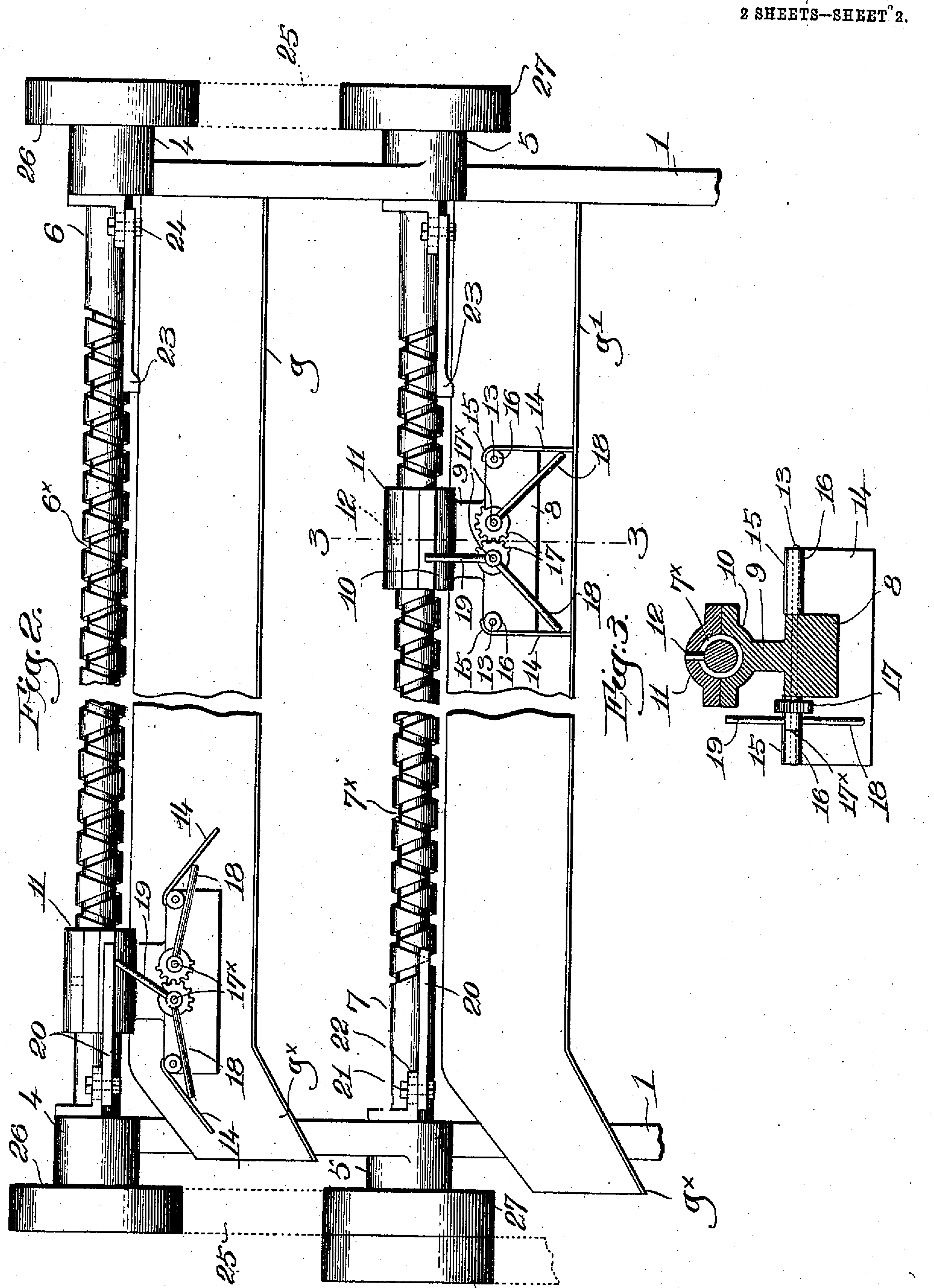

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UNITED STATES PATENT OFFICE.

WRIGHT PRESTWICK AND ERNEST PRESTWICK, OF LAWRENCE, MASSACHUSETTS.

APPARATUS FOR REMOVING BURS ON WORSTED-CARDS.

No. 924,379. Specification of Letters Patent. Patented June 8, 1909.

Application filed October 5, 1908. Serial No. 456,300.

To all whom it may concern:

Be it known that we, WRIGHT PRESTWICK and ERNEST PRESTWICK, subjects of the King of Great Britain, and residents of Lawrence, county of Essex, State of Massachusetts, have invented an Improvement in Apparatus for Removing Burs on Worsted-Cards, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention has for its object the production of means for removing automatically the burs or similar impurities as they are collected and deposited in the receptacles usually termed "bur pans" on a worsted card. The worsted card is provided with a series of bur rolls so arranged as to remove the burs from the material being carded and to discharge them into pans which extend across the card, the pans having open ends, and the attendant removes the collected burs from the pans from time to time, by means of a long stick or scraper. If the material being carded is quite dirty the burs collect rapidly in the pans and the time of the attendant is largely taken up with keeping the pans clear, particularly when he has to look after two or more of the cards. By means of our invention the collected burs are removed automatically from the pans and discharged at the side of the card, so that the attendant can give his entire time and attention to the proper operation of the carding machine or machines under his charge.

In the present embodiment of our invention we have shown our invention applied in detail to coöperate with a set of two bur pans, but it will be apparent hereinafter that if desired the apparatus can be so arranged as to act with the triple set of pans with equal facility.

The various novel features of our invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a side elevation of a portion of a worsted card showing the bur rolls and pans, with our invention applied thereto; Fig. 2 is an enlarged transverse detail showing the bur clearers and the means for operating them, in accordance with our present invention; Fig. 3 is a partial section on the line 3—3, Fig. 2, taken through the reciprocating carrier on which the clearers are mounted.

Referring to Fig. 1 the bur cylinder A, licker-in cylinders B, B′, top dividers D, D′, bottom dividers $D^{\times}$, $D'^{\times}$, feeders F, F, feeder stripper F′, the bur-guards or rolls G, G′ ... G^4, shown as arranged in two groups, and the corresponding bur-pans g, g' ... g^4, may be and are all substantially of well known construction in worsted cards, and operate in usual manner, the burs being deposited in the pans in greater or less quantity according to the condition of the material being carded.

The side frames $A^{\times}$ are provided with suitable bearings and supports to properly sustain the various working parts of the card, and the belts for transmitting motion have been omitted in the drawing as they form no part of our invention and would confuse the illustration.

The bur pans are made of metal, substantially L-shaped in cross-section, with horizontal, flat bottoms, but in order to discharge the burs clear of the side frame of the card, we prefer to provide the pans with an extension of the bottom and upturned side, as at $g^{\times}$, Fig. 2, forming a species of chute, and downwardly inclined as shown so that the burs will travel therefrom by gravity, said inclined chutes being partly shown in Fig. 1 at the farther ends of the pans g and g'.

We will describe in detail the embodiment of our invention as applied to the pans g and g', with particular reference to Figs. 1 and 2. Upon each of the side frames $A^{\times}$ we mount upright brackets 1, held in place by clamping bolts 2 passed through a slot 3 in the foot of the bracket and into the frame, so that the brackets may be vertically adjusted when necessary, said brackets having suitable bearings 4 and 5 for parallel and horizontal shafts 6, 7, shown in Fig. 1 as extended above the pans g and g'. Between the bearings each shaft is provided with a double or crossing thread, to form a traversing portion, as $6^{\times}$, $7^{\times}$, Fig. 2, and a carriage is mounted upon each shaft, to be reciprocated back and forth by rotation of the shaft. As the carriages are alike only one will be described in detail. The carriage is shown as having a substantially rectangular body 8 having an upturned web 9 which has formed upon it one half 10 of a sleeve-like hub, which is completed by a removable cap 11, the hub loosely embracing the traversing shaft, the cap having a depending follower 12 which enters the crossing thread. Rota-

tion of the shaft acts by coöperation of the follower with the traversing portion to move the carriage back and forth above the pan. Horizontal rods 13 are extended through the carriage body adjacent its ends and project beyond its sides, and upon each rod is pivotally mounted a flat clearer 14, preferably made of sheet metal and centrally cut out at its upper edge to leave lips 15 which are bent around and attached to hubs 16 which are loosely mounted on the projecting ends of each rod 13. As shown in Fig. 1 the clearers are of such length that they will pass freely between the upturned side of a pan and the coöperating bur-roll, the lower edges of the clearers in practice nearly touching the pan bottom when said clearers are lowered.

Referring to Fig. 2 the clearers of the carriage on shaft 7 are lowered, the carriage moving toward the left, so that as it moves along the clearers will scrape up and push along any burs or other impurities in the pan, while the clearers of the upper carriage are shown as having been lifted, the carriage being just about to start on its return journey to the right. We have devised simple means for controlling automatically the angular movement of the clearers, as will now be described. Two meshing gears 17 are pivotally mounted on one side of the body of each carriage, the hub of each gear having attached rigidly to it a finger 18 arranged to coöperate with the inner face of a clearer when the clearers are down, Fig. 2, as shown on the lower carriage. One of the gears, shown as the one nearer the discharge end of the pan, has an upturned arm 19 which stands substantially upright when the clearers are lowered in their operative position, the gear hubs fitting rather snugly on the studs $17^{\times}$ so as to remain in any angular position till moved positively therefrom. A trip 20 is adjustably mounted by means of a bolt 21 on a lug 22 on the left hand bracket 1, Fig. 2, the trip being located in the path of movement of the arm 19, so that when the carriage moves far enough toward the discharge chute of the pan the inner end of the trip will engage the arm and will rock it as the movement of the carriage is completed. This angular movement of the arm turns the gears 17 to quickly elevate the clearers 14 from the operative position to that shown on the upper carriage, Fig. 2, whereby the burs collected in front of the leading clearer will be thrown out of the end of the pan and into the discharge chute. It will be seen that this lifting of the clearers carries their lower edges well above the pan bottom, so that on the return stroke of the carriage the burs collecting in the pan will not be touched by the clearers; they being held lifted and inoperative by the frictional fit of the gear hubs on the studs $17^{\times}$, and the arm 19 will remain in its inclined position until the carriage is near the end of its right hand stroke. At such time a bunter 23, adjustably secured by bolt 24 on a lug of the right-hand bracket 1, see Fig. 2, will be hit by the arm and as the carriage continues to move the arm 19 will be turned into its upright position, thereby acting to oppositely rotate the gears 17 and lower the fingers 18 to the position shown on the lower carriage. As the fingers descend the clearers 14 drop into operative position close to the pan bottom, to push ahead and to the left the collected burs as the carriage makes its operative stroke to the left.

It will be apparent from the foregoing that the operative stroke of the carriage is toward the discharge end of the pan, the clearers being lowered, and on the return stroke the clearers will be held elevated from the pan bottom until the bunter 23 strikes the arm 19 and operatively positions the clearers as described.

By the means described the pans will be kept clear of the accumulations of burs and other impurities without any care or attention on the part of the attendant.

The traversing shafts 6 and 7 can be driven in any suitable manner, and herein we have shown a belt 25 at each side of the card, connecting pulleys 26, 27 on the ends of said shafts, the shaft 7 having at one end a second pulley 28, from which a belt 29 leads to a pulley on any suitable rotating shaft of the card, as for instance on the shaft $B^{\times}$ of the licker-in cylinder B, Fig. 1, to drive the shaft 7.

The group of three bur pans g^2, g^3 and g^4, at the right, Fig. 1, can be provided with automatic clearers in the same way, but to avoid confusion and unnecessary detail we have shown only the ends of the three traversing shafts 30, 31, 32 which will be mounted in suitable bearings on brackets 33 having their feet bolted to the side frames $A^{\times}$. Each of said shafts will be provided with a reciprocating carriage provided with clearers, as described hereinbefore, which clearers will operate in the manner set forth.

By adjusting the brackets on the side frames the lower edges of the clearers, when operatively positioned, can be set nearer to or farther away from the bottoms of the bur pans, as may be desired.

Various changes and modifications in details of construction and arrangement may be made by those skilled in the art without departing from the spirit and scope of our invention as set forth in the claims annexed hereto.

Having fully described our invention, what we claim as new and desire to secure by Letters Patent is:—

1. The combination, in a carding apparatus provided with bur pans, of clearers

adapted to travel back and forth in the pans, means to effect automatically the travel of the clearers, means to operatively position the clearers for one stroke, and means to move said clearers into inoperative position for the return stroke.

2. In apparatus of the class described, a pan to receive the burs, a rotating traversing shaft adjacent the pan and parallel thereto, a carriage coöperating with said shaft and reciprocated thereby longitudinally of the pan, a clearer on the carriage adapted to enter the pan and by longitudinal movement therein remove the burs deposited in the pan, and means to render the clearer inoperative on alternate strokes of the carriage.

3. In apparatus of the class described, a pan to receive the burs, a rotating traversing shaft adjacent the pan and parallel thereto, a carriage coöperating with said shaft and reciprocated thereby longitudinally of the pan, a depending clearer pivotally mounted on the carriage and adapted to travel in and lengthwise of the pan, and means to control the position of the clearer whereby on one stroke it pushes before it burs deposited in the pan and on the return stroke is held in inoperative position.

4. In apparatus of the class described, a pan to receive burs, a rotating traversing shaft adjacent the pan and parallel thereto, a carriage coöperating with said shaft and reciprocated thereby longitudinally of the pan, a clearer pivotally and transversely mounted on and adapted to depend from the carriage into the pan and travel lengthwise thereof, a controlling finger on the carriage, to at times lift the clearer into inoperative position, and relatively fixed means to move the finger at the ends of the traverse of the carriage, whereby on one stroke the clearer will be operative and on the other stroke it will be inoperative.

5. In apparatus of the class described, a plurality of bur pans arranged in parallelism, a stationary frame, traversing shafts rotatably mounted thereon one above each pan, a carriage coöperating with each shaft and reciprocated thereby lengthwise of a pan, clearing means on each carriage, to act upon the collected burs and push them along to be discharged at one end of the pan, and mechanism to render the clearing means inoperative on alternate strokes of the carriage.

6. In apparatus of the class described, a plurality of bur pans arranged in parallelism, a stationary frame, traversing shafts rotatably mounted thereon one above each pan, a carriage coöperating with each shaft and reciprocated thereby lengthwise of a pan, a pair of pivoted clearer blades on each carriage and frictionally held in raised position, means to effect simultaneous raising and permit simultaneous lowering of each pair of blades, and devices to coöperate alternately with said means as the carriage approaches each end of its stroke, to permit the blades to be lowered on one stroke and cause them to be raised on the return stroke.

7. In apparatus of the class described, a plurality of bur pans arranged in parallelism, a vertically adjustable frame, traversing shafts thereon, one for each pan, clearing means coöperating with the shafts and reciprocated thereby within and lengthwise of the pans, and mechanism to render said clearing means operative on one stroke and inoperative on the opposite stroke.

In testimony whereof, we have signed our names to this specification, in the presence of two subscribing witnesses.

WRIGHT PRESTWICK.
ERNEST PRESTWICK.

Witnesses:
JOHN W. BEAUMONT,
GEORGE T. TETTEY.