

No. 694,827.

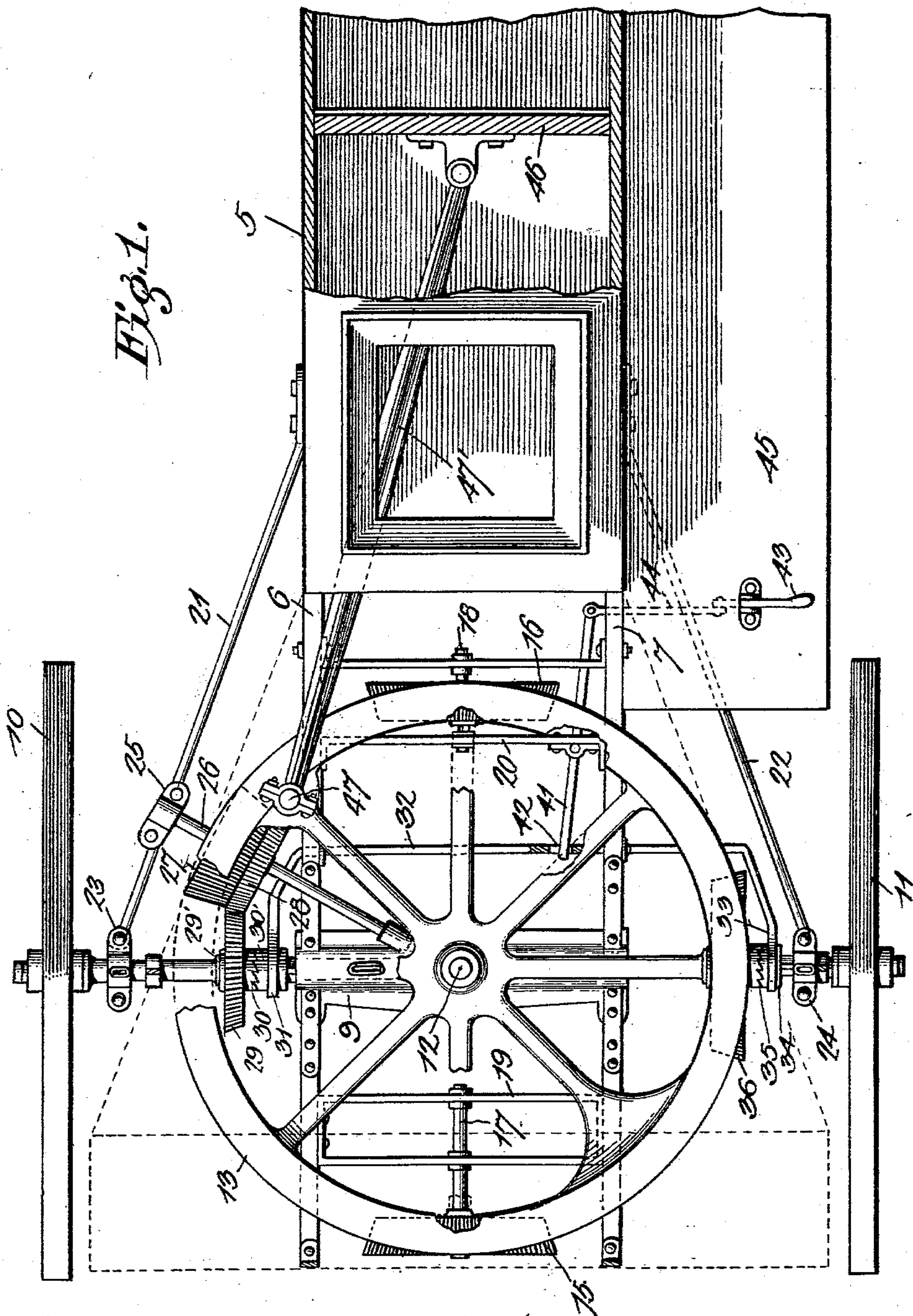
Patented Mar. 4, 1902.

F. S. BUCHANAN.
AUTOMATIC HAY PRESS.

(Application filed Apr. 8, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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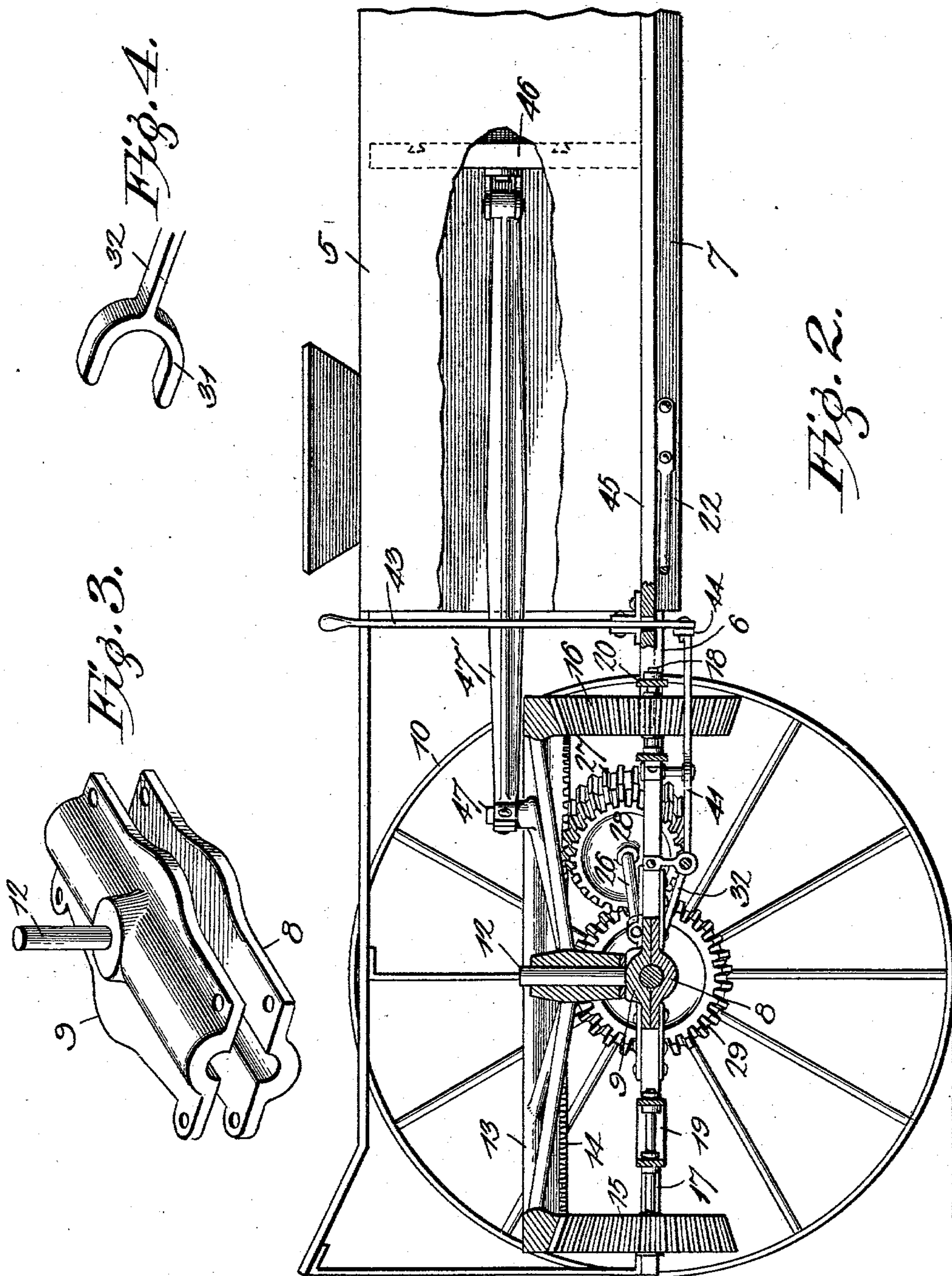
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

FRANK SINCLAIR BUCHANAN, OF KANSAS CITY, KANSAS.

AUTOMATIC HAY-PRESS.

SPECIFICATION forming part of Letters Patent No. 694,827, dated March 4, 1902.

Application filed April 8, 1901. Serial No. 54,877. (No model.)

To all whom it may concern:

Be it known that I, FRANK SINCLAIR BUCHANAN, a citizen of the United States, residing at Kansas City, in the county of Wyandotte and State of Kansas, have invented a new and useful Automatic Hay-Press, of which the following is a specification.

This invention relates to hay-presses; and it has for its object to provide a device of this nature which may be easily transported from place to place and which when desired may have its pressing mechanism connected with the ground-wheels thereof for operation therefrom.

Further objects and advantages of the invention have reference to the mechanical details of the structure, all of which will be understood from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a top plan view showing the rear portion of the press. Fig. 2 is a view partly in side elevation and partly in vertical section and showing that portion of the apparatus illustrated in Fig. 1. Fig. 3 is a detail perspective view showing the casting in which the ground-wheel axle or drive-axle has its bearing, the members thereof being separated. Fig. 4 is a detail perspective view of the end of the shift-lever for one of the clutches.

Referring now to the drawings, the body of the press comprises a press-box 5, mounted upon parallel reaches or sills 6 and 7, and connecting these sills are transverse journal-box members 8 and 9, which are bolted in place and in which is mounted the rotatable rear or drive axle of the machine. Supporting-wheels 10 and 11 are fixed to the ends of the axle and form ground-wheels for rotating the axle. The bearing member 9 has an upwardly-directed spindle 12, and on this spindle is mounted a bull-wheel 13 for rotation in a horizontal plane, said wheel having bevel-gear teeth 14 on its under face and adjacent to its periphery and with which engage the idle gears 15 and 16, carried by shafts 17 and 18, which latter are mounted in cross-braces 19 and 20, connecting the sills of the machine. These shafts lie at right angles to and

intersect the drive-axle and serve to balance the bull-wheel.

Hounds 21 and 22 are connected at their forward ends to the sills 6 and 7 and at their rear ends to sleeves 23 and 24, which are mounted upon the drive-axle directly adjacent to the wheels, and one of these hounds 21 has a bearing 25, in which is journaled a shaft 26, journaled also upon the bearing member 9, and this shaft carries a bevel-gear 27, meshing with the gear on the bull-wheel.

To rotate the shaft 26, it is provided with a bevel-gear 28, which may be a continuation of the gear 27 or formed separate therefrom, as desired, and engaging this gear 28 is a bevel-gear 29, which is mounted rotatably upon the drive-axle of the apparatus and one end of the hub of which rests against a stop-collar 29', which holds it against movement longitudinally of the axle. The opposite end of the hub of the beveled gear 29 is provided with clutch-teeth 30, and to hold the beveled gear 29 at times to be rotated by the drive-axle a clutch member 30' is provided and is splined to the drive-axle, and one end thereof is provided with clutch-teeth, as shown, for engagement with the teeth 30. To shift the clutch member 30' into and out of engagement with the wheel 9, it is peripherally grooved for engagement by the yoke or strap 31 at the end of a shift-rod 32, mounted slidably in bearings on the sills 6 and 7 for movement transversely of the apparatus. A second gear 36, in mesh with the bull, is mounted loosely upon the drive-axle and has clutch-teeth at one end of its hub for engagement by the teeth at the end of a second clutch member 34, which is splined upon the drive-axle and has cooperating clutch-teeth. This clutch member 34 has a peripheral groove in which is engaged the yoke or strap 33 at the opposite end of the shift-rod 32, so that when the shift-rod is moved in one direction the wheels 29 and 36 are clutched to the drive-axle and when the clutch members are shifted in an opposite direction the axle is free to revolve without the gears. To thus operate the shift-rod to engage and disengage the clutches, a lever 41 is fulcrumed to one of the cross-braces of the sills 6 and 7 and has one end slidably engaged in an opening 42 in the shift-

rod, the opposite end of this lever having connection with a hand-lever 43 through the medium of a link 44, said hand-lever being mounted upon the platform 45, on which the press-box 5 is built. By operation of this hand-lever the shift-rod is reciprocated and the bull-wheel is thrown into and out of operative connection with the drive-axle.

It will be observed by reference to Fig. 1 that the gear 36 on the drive-axle meshes directly with the bull-wheel and is driven directly by the axle, whereas the gear 27 on the opposite side of the machine that meshes with the bull-wheel is driven through a gear 29 on the driving-axle, this arrangement being necessary in order to impart rotation in different directions to the gears 27 and 36, so that motion is imparted to the bull-wheel in a positive manner on opposite sides thereof, thereby insuring its direct and effective driving. It will also be noted that the clutch member of the gear 29 faces toward the center of the apparatus and that of the gear 36 toward one side of the machine and in the same direction as that first named, and by this disposition of the clutch-faces the two said gears may be simultaneously and at one movement of the hand-lever locked upon the drive-axle and by a reverse movement be unlocked therefrom. The press-box 5 is of common construction and has a plunger 46, connected with a wrist-pin 47 on the bull-wheel through the medium of a pitman or plunger rod 47'. With this construction it will be seen that as the machine is drawn through a field the bull-wheel will be rotated and the plunger reciprocated in the press-box and that when it is desired to transport the apparatus without operating

its pressing mechanism the clutches may be released, when the drive-axle will rotate without actuating the bull-wheel. Furthermore, when it is desired to actuate the mechanism it may be instantly thrown into operative relation to the drive-axle.

What is claimed is—

1. In a hay-press, the combination with a horizontally-disposed bull-wheel, and a plunger operatively connected therewith, of a drive-axle carrying at one end a loose gear in direct mesh with the bull-wheel, a shaft carrying a gear also in mesh with the bull-wheel, a second gear loosely mounted on the drive-axle and meshing with the last-named gear-wheel, and clutch mechanism for locking the loose gears to the axle, substantially as described.

2. In a hay-press, the combination with a horizontally-disposed bull-wheel and a plunger operatively connected therewith, of a drive-axle carrying two loose gears, one of which is in direct mesh with the bull-wheel, and the other out of mesh therewith, a shaft carrying a third gear meshing with the bull-wheel and the second-named gear, clutch mechanism for locking the loose gears to the shaft, and idle gears meshing with the bull-wheel and operating to balance the same, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

FRANK SINCLAIR BUCHANAN.

Witnesses:

M. J. BUCHANAN,
S. E. RICHEY.